

elucidate the link between electricity and change in biologic behavior of bone. At present the evidence suggests that electricity may produce an increase in the cyclic adenosine monophosphate production within the bone forming cells which may stimulate an increase in bone formation.

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The Use of Large Osteocartilaginous Allografts for the Replacement of Segmental Defects in Orthopaedic Surgery

LARGE MUSCULOSKELETAL ALLOGRAFTS have been used since the early 1900's; however, now there is renewed and growing interest in this particular procedure. With the development of antibiotics, better methods of internal fixation, and newer techniques in tissue banking and tissue transplantation, the success rate of musculoskeletal allografting has improved considerably. Over the past decade, in more than 200 cases locally aggressive tumors have been resected and the bony defect replaced with a musculoskeletal allograft. At the time of placement of the allograft bone in the recipient, large additional autograft bone from the iliac crest is usually placed inside the allograft bone as well as around the osteosynthesis sites. This technique has been shown in experimental animals to improve greatly the eventual incorporation of the donor bone by the recipient. The donor bone is known to be dead as it is placed into the recipient, however, it is eventually replaced by living bone of the recipient. This process is one that takes many months to several years, and is usually best followed by the gradually increasing activity shown on bone scan followed by a decline to normal activity.

Joint deterioration has always been a problem since the beginnings of allografting, and is thought to be due to three possible mechanisms: (1) poor fit of the donor joint surface to the recipient joint surface when only half a joint is being replaced, (2) the fact that methods of preservation of the musculoskeletal allograft (such as freezing) usually destroy the cartilage cells which do not regenerate after implantation and (3) an immune response gradually taking its toll in the form of a

pannus-like destruction of the joint surface. In an attempt to improve the results due to the detrimental effects of the above factors, the following procedures are being carried out. First, a good fit is obtained by selecting an x-rayed graft segment that will fit the recipient surface, and in any areas of misfit, trimming of the graft tissue is done to obtain as good a fit as possible. Second, new methods of cryopreservation are being used by exposing the cartilage during freezing to 10 percent dimethylsulfoxide (DMSO) in order to store the cartilage in a viable state. It is to be hoped that this immunologically privileged tissue will remain viable after transplantation. Third, new methods are being investigated to decrease the immune response against the specific tissue being transplanted. Attempts have not been made to obtain an identical histocompatibility antigen (HLA) match, because the chances of doing so are less than 1:150,000. Instead, attempts at decreasing the antigenicity of the musculoskeletal allograft are being carried out, such as removing as much of the marrow as possible and storing the graft at -80°C .

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Ender Nail Fixation for Intertrochanteric Hip Fractures

OPERATIVE TREATMENT of intertrochanteric fractures of the femur in adults has become generally accepted as the preferred form of management. Patients with these injuries are usually elderly, are often debilitated, and withstand poorly the three months or so of bedrest and traction required to achieve a stable union. Surgical treatment, however, confers its own risks and problems. Many variations on the theme of nail and side plate have been proposed for fixation of intertrochanteric fractures, but they all require a substantial lateral exposure of the proximal femur. The fracture is rendered susceptible to infection. Operative blood loss is often significant and secure fixation is not always obtained. Therefore, postoperative traction or reoperation are occasionally required.

Because of these problems, interest remains in developing alternative approaches to the management of intertrochanteric hip fractures. Ender